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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/678,125

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Tatsuhiro Fukuzawa

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EXAMINER

ECHELMAYER, ALIX ELIZABETH

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/678,125

Applicant(s)

FUKUZAWA ET AL.

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10-6-03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I, claims 1-8 in the reply filed on November 7, 2006 is acknowledged. Because applicant state that the restriction requirement was not traversed but did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 1-8 are pending and are rejected for the reasons given below.

### ***Specification***

3. The disclosure is objected to because of the following informalities: on page 3 lines 6-7, the forms of "battery" do not match. A plurality of bipolar "batteries," perhaps "each" "bipolar battery ..." should be disclosed.

Appropriate correction is required.

### ***Claim Objections***

4. Claim 6 is objected to because of the following informalities: lithium titanate is referred to as the changeable electrode active material and spinel lithium manganate is referred to as the unchangeable electrode. Based on the disclosure, the examiner believes that it is not possible for those materials to have the claimed properties. The examiner believes that Applicants meant to claim the changeable electrode active

Art Unit: 1745

material, spinel lithium manganate, as the negative electrode and the unchangeable electrode active material, lithium titanate, as the positive electrode, thus switching which electrode is made of which material but not switching the property associated with each material. Appropriate correction is required.

5. Claim 8 is objected to because of the following informalities: the forms of "battery" do not match. A plurality of bipolar "batteries," perhaps "each" "bipolar battery ..." should be claimed. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Abraham et al. (US Patent 5,766,796).

Regarding claim 1, Abraham et al. teach a bipolar rechargeable battery (abstract, Figure 1). The anode is made of lithium titanate and the cathode is made of spinel lithium manganate (abstract). Since the compositions taught by Abraham et al. are physically the same as those of the instant invention, specifically claimed in claims 4 and 6, then they have the same properties (MPEP 2112.02 II). Thus, lithium titanate, as the anode material, would inherently be a changeable electrode active material as

Art Unit: 1745

defined by the instant disclosure and spinel lithium manganate, as the cathode material, would inherently be an unchangeable electrode active material as defined by the instant specification.

As for claim 2, it is seen in Tables I and II (columns 6 and 7) that the capacity of the unchangeable material ranges from 125% to 146% of the changeable material.

Concerning claim 3, the functions of the changeable and unchangeable electrode active materials as claimed are presumed to be inherent since the compositions are physically the same (MPEP 2112.01 I).

As for claims 4 and 6, the charge limit of the battery of Abraham et al. is 2.9 V (column 7 line 37).

With further regard to claim 6, the positive and negative electrodes switch depending on whether the battery is in use or being charged.

As for claim 7, Abraham et al. teach a solid polymer electrolyte (abstract).

Regarding claim 8, a plurality of the batteries taught by Abraham et al. can be seen in Figure 1 – and the batteries are separated by a bipolar plate (column 4 lines 20-21).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1745

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. in view of Shirane et al. (US Patent 6,410,188).

The teachings of Abraham et al. as discussed above are incorporated herein.

Abraham et al. teach a battery having a cathode made of spinel lithium manganate but fail to teach a graphite anode.

Shirane et al. teach a non-aqueous electrolyte secondary battery having an anode made of graphite, which is capable of intercalating and decalating lithium, and a cathode of lithium manganate (abstract, column 1 lines 31-35; column 5 lines 26-29).

It is further taught that the completion voltage for the batteries of Shirane et al. is approximately 4.2V (Figures 2-4).

It would be desirable to use a cathode made of spinel lithium manganate and an anode of graphite if a charge voltage greater than 4V was desired.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use a cathode made of spinel lithium manganate and an anode of graphite, as taught by Shirane et al., in the battery of Abraham et al. if a charge voltage greater than 4V was desired.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer  
Examiner  
Art Unit 1745

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PRIMARY EXAMINER